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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,972

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Martin Behringer

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9254

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7590

03/31/2008

COHEN, PONTANI, LIEBERMAN & PAVANE  
551 FIFTH AVENUE  
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NEW YORK, NY 10176

EXAMINER

VAN ROY, TOD THOMAS

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,972	<b>Applicant(s)</b> BEHRINGER ET AL.	
	<b>Examiner</b> TOD T. VAN ROY	<b>Art Unit</b> 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/30/06, 5/30/06</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

Claim 2 is objected to because of the following informalities:

Claim 2 contains an additional word "for" included at the end which is not necessary.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-8, and 11-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Rice (US 6724792).

With respect to claim 1, Rice discloses a device comprising: a heat sink (fig.2 #30), and a radiation emitting optoelectronic component (fig.2 #19) which is connected to said heat sink and is intended for pulsed operation with a pulse duration D (col.1 lines 61-65), wherein said heat sink is arranged such that temperature changes of the

optoelectronic component take place with a thermal time constant  $T$  during pulsed operation, and wherein the thermal time constant  $T$  is matched to the pulse duration  $D$  (inherent that the optoelectronic device would have a thermal time constant, and that the time constant  $T$  would be a function of  $D$ , as  $D$  is the period of operation when the laser would necessarily be heated) in order to reduce the amplitude of the temperature changes (purpose of the heat sink).

With respect to claim 6, Rice discloses the optoelectronic device has an output power of 20W or more (col.5 line 64).

With respect to claim 7, Rice discloses the heat sink is actively cooled (fig.3 coolant).

With respect to claim 8, Rice discloses that the heat sink has one or more microchannels through which coolant flows (fig.2 #32).

With respect to claim 11, Rice discloses the heat sink contains copper (col.6 line 50).

With respect to claim 12, Rice discloses the optoelectronic component is a laser diode bar (col.6 lines 17-22).

With respect to claim 13, Rice discloses the method of producing the device outlined in the rejection to claim 8 above, wherein it is inherent that the thickness of the heat sink influences the temperature of the optoelectronic device (as it can draw heat further from the source via the high heat conductance).

With respect to claim 14, Rice discloses the method of producing the device outlined in the rejection to claim 1 above, wherein the pulse time  $D$  and the thermal time

constant of the optoelectronic device are inherently matched, and the heat sink ensures reduction of the amplitude of temperature change.

With respect to claim 15, Rice discloses the method outlined above, wherein it is inherent that the thermal time constant is set in part by dimensioning the area or thickness of the substrate as the material choice and dimensions determine the heat conductive and dissipative properties of the device.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2-5, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice.

With respect to claims 2-3, Rice teaches the device outlined above, but does not detail the thermal time constant to pulse duration relationship. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose a material

type of the optoelectronic device such that these relationships hold true in order to use materials of varying frequency output regimes.

With respect to claim 4, Rice teaches the device to cool the temperature of the diodes, but not a specific temperature variable range. It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the device of Rice to choose a specific temperature range of device operation as a matter of optimization of a known method (see MPEP 2144.05 II A, “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

With respect to claim 5, Rice teaches a pulse operation range of 100-1000Hz, but not 0.1-10Hz. It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the device of Rice to choose a specific repetition rate of device operation as a matter of optimization of a known method (see MPEP 2144.05 II A, “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

With respect to claims 9-10, Rice teaches the device outlined in the rejection to claim 8, including the importance of choosing the proper wall thickness (col.11 lines 49-55), but not specific wall thickness values. It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the device of Rice to choose a specific wall thickness as a matter of optimization of a known method (see MPEP

2144.05 II A, “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”  
In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOD T. VAN ROY whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TVR/

/Minsun Harvey/

Application/Control Number: 10/580,972

Page 7

Art Unit: 2828

Supervisory Patent Examiner, Art Unit 2828